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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CARL M. HOFFMASTER, DAVID K. TRUAX,
and TIMOTHY P. BEATON

Appeal 2007-3084
Application 10/774,134
Technology Center 3600

Oral Hearing Held: April 10, 2008

Before LINDA E. HORNER, DAVID B. WALKER, and BIBHU R. MOHANTY, Administrative Patent Judges

ON BEHALF OF THE APPELLANT:

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The above-entitled matter came on for hearing on April 10, 2007, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Dan Hawkins, Free State Reporting, Inc.

PROCEEDINGS

MS. BEAN: Calendar Number 36, Mr. Huddleston.

JUDGE HORNER: Thank you.

MS. BEAN: You're welcome.

JUDGE HORNER: Good afternoon, you can proceed when you're ready.

MR. HUDDLESTON: Good afternoon. May it please the Court, my name is Lee Huddleston, and I represent the Applicants in this case, Mr. Carl Hoffmaster, David Truex (phonetic sp.) and Timothy Beaten (phonetic sp.) for Application 10/774,134.

We're here to appeal the Examiner's determination that the sole Independent and 17 Dependent Claims at issue in this matter lacked novelty under Section 102 United States Code 35. In particular we traverse this rejection on the basis that each and every limitation as required by Federal Circuit precedent must be found in a single reference as arranged in the claims. In particular, focus my attention to Claim 201, which is the sole Independent Claim from which all remaining claims depend.

Claim 201 is, is directed to an expandable reaming tool for oil field use. Having at least two reamer pads coupled to a tool body and configured to be displayed between retract and extended positions. At least one blade is formed on at least one of the two reamer pads, and a plurality of cutter elements are mounted on the at least one blade.

Wherein the plurality of cutter elements arranged, excuse me -- excuse me, substantially balanced at least one of the axial force, lateral force work amass between the reamer pads. Furthermore, the final element to the

1 claim is the under-reamer is to be configured to be able to ream while
2 drilling.

3 The term reamer or in this case, under-reamer, or even a back-reamer
4 in oil field parlances is a term of art. It doesn't follow the exact same
5 definition of what you would commonly refer to as a reamer in say a
6 machine shop environment. A typical reamer would be a finishing tool to
7 finish off or clean out a hole that had been previously bored or drilled by a
8 drill-bit.

9 In oil field parlance, a reamer is often referred to as a hole opener for
10 its ability to change the bore of the drilled bore-hole from one size to
11 another. For example, a six-inch borehole could be opened up to a eight-
12 inch borehole. Therefore, the reamer is -- it, it encompasses much more than
13 just a simple reamer as you would commonly understand if you have a
14 machining background.

15 Further, the elements of Claim 201, the Examiner rejected the claim
16 under Haley (phonetic sp.), the Haley 374 Patent, and referred to Items 24a
17 and b in the figures of Haley as pads.

18 We take a, we traverse this on the grounds that the Haley device does
19 not shoe the pads. In fact, the Haley device refers to Items 24a and b as
20 blades.

21 JUDGE MOHANTY: Just because he calls them blades, doesn't
22 mean that you can't use that as a pad in the rejection. It's a structural
23 anticipation.

24 MR. HUDDLESTON: That's correct, Your Honor. It is, it is true
25 that, you know, nomenclature is, you know, you're allowed to be your own

1 lexicographer and choose your words wisely; however, in this, in this case,
2 Claim 201 requires blades in addition to pads.

3 JUDGE MOHANTY: Aren't the blades shown by Number 30?

4 MR. HUDDLESTON: That's -- well that's the --

5 JUDGE MOHANTY: Just because the reference doesn't call them
6 blades, and you call it blades, it doesn't mean it's not anticipation. It's like
7 he's calling it a rod, and you're calling it a solid cylinder. I don't see what
8 the distinction is for a 102 rejection.

9 MR. HUDDLESTON: The Claim 201 further requires cutting
10 elements.

11 JUDGE MOHANTY: Doesn't he show that at Element 54 which he
12 refers to as diamonds for used to cut from what I can tell from this reference.

13 MR. HUDDLESTON: I'm sorry, what was the Reference Number
14 you used, Your Honor?

15 JUDGE MOHANTY: Reference Numeral 55 are cutting elements;
16 those are diamonds.

17 MR. HUDDLESTON: Fifty-five.

18 JUDGE MOHANTY: Yeah.

19 MR. HUDDLESTON: Therein lies the issue that we have with the
20 pad/blade/cutter arrangement that the Examiner has proffered. The, the
21 elements of the, of the claim require pad, a blade on the pad and cutting
22 elements on the blade. Element 55 referred to the Examiner is just a mere
23 polycrystalline diamond overlay. It's a coating. It's not actually structure.
24 It is a wear resistant coating that is applied to the cutting structure that is
25 actually referred to as Item 30.

26 JUDGE MOHANTY: Okay.

1 MR. HUDDLESTON: Much in the same way if you had a serrated
2 knife, and you coated it with Teflon. The Teflon would not be a cutting
3 element. The serrations are the cutting element. Teflon is a --

4 JUDGE MOHANTY: Aren't the diamonds at some level doing the
5 cutting? Aren't diamonds typically used to cut in this environment? He
6 says that in Column 2, Line 60, cutter elements such as natural diamonds.

7 MR. HUDDLESTON: Where it is true that diamond is a cutting
8 material, in this case, the structure of the cutter elements is embodied in the
9 metal, hard metal piece which I believe is detailed as Number 30. The
10 diamonds --

11 JUDGE MOHANTY: But, those don't actually cut anything because
12 the diamonds are going to butt up against the bore? So, how can 30,
13 Element 30 be cut anything? It's the actual surface which is the diamonds
14 which are doing the cutting. So, you see my point?

15 MR. HUDDLESTON: Yes, Your Honor, I understand your point.
16 We believe that, you know, certainly you're entitled to the broadest
17 reasonable construction of the claims for examination, but that construction
18 must still be consistent with the specification as a presented. We take the
19 position that the cutting elements, if any, themselves are Item 30, the hard
20 metal piece. In particular, there's a single one. It's not a plurality, it's a
21 single one, and there's a mere hard facing coating applied to there to create a
22 more robust cutter.

23 Furthermore, we take the position that Items 24b and a as shown in
24 Figures 1 and 2, excuse me as shown in Figure 2, are more analogous to the
25 blade limitation and do not contain the pads.

1 The specification of the present application refers to advantages of
2 pads as maximizing cutter exposure and providing a blade standoff from the
3 tool body, the improvements being the cutting, cutting transportation from
4 the bottom of the bore-hole back up through the annular space, fluid
5 circulation and cooling of the drill-bit blower effectuated by this.

6 Nonetheless, we believe, we further believe that there is no suggestion
7 in the reference or the teaching to suggest that there is balancing between the
8 cutter elements as required by Claim 201. In particular, we note that the
9 blades are curved and they're not profiled in any particular fashion to, you
10 know, maximize hope opening capability. Therefore, you'd have a point
11 contact on an imaginary cylindrical borehole.

12 A point contact would not be capable of balancing loads there across
13 or work. It would be the axial force or lateral force work or mass between
14 the two reamer pads. Of course, as we take the position that reamer pads are
15 not disclosed you further there is no balancing of mass or forces across there
16 as well.

17 JUDGE MOHANTY: The specification -- I mean, just, just looking
18 at the plain view they look to be identical; both reamer pads, blades,
19 whatever you want to call 24a and 24b. The specification describes them as
20 being identical. I don't see how they would be anything but substantially
21 balanced in terms of mass if they're identical. In your own specification you
22 seem to talk also about that; about the reasons that yours are balances just
23 because the, the components are identical. I don't see how these, I don't see
24 how anyone could even look at that and say those, those two whether they
25 rotate or not are going to be substantially balanced.

1 Particularly in this environment where you want it to be balanced, you
2 don't want any torque on that drill bit a couple miles down underneath the
3 earth.

4 MR. HUDDLESTON: Yes, Your Honor, if you take a look at our
5 Figure, our Figure 3 from the present application, the, the structure of, of the
6 cutting elements, 52, is, you know, far from arbitrary. It's, it's designed
7 specifically to enable a force and particularly in energy work or mass
8 balance there across. If you have two identical cutter elements, one on each
9 blade, and you follow each other in a helical pattern, at some point you're
10 going to have overlap from Cutting Element A, and the following Cutter
11 Element behind it, B.

12 So, as a, as a result, maybe when you first begin to cut you'll have
13 balance, but as you rotate you'll begin to over-cut the previous cutter's
14 work. So, the work therefore is not balanced between the two pads.

15 JUDGE WALKER: Do your claims say balance the work? I didn't
16 think they did.

17 MR. HUDDLESTON: I'm sorry?

18 JUDGE WALKER: The claims don't require balancing the work, do
19 they?

20 MR. HUDDLESTON: The claims say at least one parameter sector
21 from axial force lateral force en mass between. So, balancing the work is
22 one way to do it, but if I balance the lateral force through the mass --

23 MR. HUDDLESTON: That's, that's --

24 JUDGE WALKER: -- if they're identical, wouldn't the mass be
25 balanced?

1 MR. HUDDLESTON: That's correct, Your Honor, it is a marker
2 group structure. So, you only need one to, to defeat novelty. I would have,
3 we would, of course, say that the foundation behind work balance is also the
4 same behind the force balance whereas cutter A is cutting fresh bore-hole,
5 and cutter B 180 degrees, for example, is behind it cutting some portion of
6 what was cut by the previous cutter, then of course the force balance would
7 not be equal either.

8 Moving onto our final argument with respect to this Appeal we note
9 that the, the Haley device as shown in Figures 1 and 2 is not capable of
10 reaming while drilling as required in Claim 201. In, I call the attention to
11 Lines 45 through approximately 48, in operation the rotary tool, 10, may be
12 lowered down hole to a work area through existing tubing and once at work
13 site the attentive fluid pressure may be adjusted to compress.

14 And, then leading down to Line 55, excuse me, Line 56, whereupon
15 the rotary tool can be moved upward or downward with repetition in the
16 same sequence. Therefore, this tool which we object we will offer the
17 opinion that it's not a reamer per se anyway. It's not capable of reaming
18 even if it is considered a reamer, it's not capable of reaming while drilling as
19 that term is used in oil field technology.

20 JUDGE MOHANTY: Can, can your claims really require that? All
21 it, all it says is, is configured to ream or drill? It's configured to ream or
22 drill. Isn't that just a statement of intended use?

23 MR. HUDDLESTON: It's a structural limitation as well as it has --

24 JUDGE MOHANTY: What's, what's the structure in that phrase?

25 MR. HUDDLESTON: In oil field technology, anything while
26 drilling is considered to be something that is allowed to be used without

1 interrupting the drilling process. Historically, in older technology
2 inventions, such as this, you would drill a borehole. You would remove the
3 entire drill string, the bit, everything and all the equipment associated
4 therewith, and then run the further tool down. Perform the operation and
5 remove it, and then run the drill string back again.

6 JUDGE MOHANTY: Doesn't this application incorporate by
7 reference a previous patent which has almost the same exact same structure
8 in the drill-bit at the end, and it says this clean-out tool would be used in the
9 upper portion of that instrument.

10 MR. HUDDLESTON: Yes, that, that the -- I'm not sure if it
11 incorporates by reference. That is a subject of the second appeal for the
12 same specification.

13 JUDGE MOHANTY: In this, in this patent right here, this reference
14 Column 2, Line 3 doesn't say that the piston is in opposite position to
15 drilling fluid under pressure present in the actual bore. So, doesn't that
16 allude that this tool is used during drilling?

17 MR. HUDDLESTON: Drilling fluid is the, is, is a term of art used
18 for a select also known as drilling mud which is fluid that is available on the
19 rig site and is usually pumped down hole at various opportune times under
20 various pressures for various purposes to effectuate the drilling process as a
21 whole. You would still use drilling fluid as your main working fluid even
22 though you were not actually drilling. You may use a different weight or a
23 different specific gravity drilling fluid for a different task, but the fluid is in
24 the hole. If you were, if you retrieve the drill string and all the drilling
25 equipment from the hole, the drilling fluid is still there. Therefore, when
26 you add new equipment, you would be applying pressure at the top of the

1 drilling rig which would, in effect, compress the drilling fluid that remains
2 down hole.

3 I call the attention of Figures -- well all the figures of the Haley
4 Patent, and there's no teaching or even enablement of this device being
5 connectable to a pilot bit below it. In fact, the --

6 JUDGE MOHANTY: Doesn't this patent refer to Patent 48, 4809793
7 which has the drill-bit in it, and uses a similar cutout tool. And, this whole
8 patent is directed to a simple substitution of this cutout tool to be used in that
9 drilling apparatus?

10 MR. HUDDLESTON: I'm not sure I'm following your --

11 JUDGE MOHANTY: Well, it says --

12 MR. HUDDLESTON: -- point.

13 JUDGE MOHANTY: -- in this patent it says this patent describes a
14 rotor clean-out tool the type that would be used in a cutting blade and, and
15 he's describing that as being in the 793 Patent. I mean, he's -- the 739
16 Patent shows at the bottom a drill-bit, and a tool in the middle that's a clean-
17 out tool, and he's saying that this invention you're just taking this clean-out
18 tool and sticking it in a drill-bit.

19 MR. HUDDLESTON: Are you talking about the specification of the
20 Haley Patent?

21 JUDGE MOHANTY: Yeah.

22 MR. HUDDLESTON: He identifies in the, in the specification
23 another one of his patents that is a clean-out tool, and he is, of course,
24 making the statement that you can use this as, you know, in conjunction with
25 that clean-out tool; however, making a statement and enabling something
26 acre, are two different things.

1 In this case, the structure of the blades themselves would not lend
2 themselves to under-reaming capability. It's -- the blades are designed, if
3 you'll note their curved, and you would use this tool to clean out the hole as
4 it is raised. All the cutting elements start at the upper end and they curve
5 around; the bottoms don't even have hardened cutter elements.

6 If you'll look at Items 38a and b on Figure 2, there is no hard facing
7 on that, on the downward portion. Reaming while drilling requires
8 downward/forward progression or else you're not reaming while drilling,
9 you're reaming following drilling or reaming at some point in time after
10 you've drilled a hole. It requires concurrent operation of the reamer and the
11 drill-bit at the same time.

12 That being said, we ask that this, this Panel reverse the Examiner's
13 determination that all Claims 201 through 218 are anticipated by the Haley
14 374 reference and request issuance.

15 JUDGE HORNER: So, you're saying that if you took the blades of
16 this Haley 374 Patent, and you put them on the drill, drill cutting tool, or
17 drill string of the Haley 793 that someone skilled in the art wouldn't know
18 how to do that, or that it wouldn't work?

19 MR. HUDDLESTON: The combination would not work as claimed,
20 Your Honor, or as proposed.

21 JUDGE HORNER: And, why is that?

22 MR. HUDDLESTON: If for example, if you look at Figure 12, at the
23 bottom where --

24 JUDGE HORNER: Figure 12 --

25 MR. HUDDLESTON: I'm sorry, Figure 2 --

26 JUDGE HORNER: Figure --

1 MR. HUDDLESTON: -- of Haley 374.

2 JUDGE HORNER: Okay.

3 MR. HUDDLESTON: If you notice Item 12 at the bottom. If you
4 were to attach a drill-bit down there and use this as a drilling tool, and if you
5 pumped up pressure as suggested in this specification to bore, 14, at the top
6 to his piston, 18, it would attempt to open the scissor blades and Items 38a
7 and 38b also at the bottom of Figure 2 would contact the, the bore, the
8 smaller diameter bore-hole first long before the remainder of the blades
9 would ever contact; therefore, 38, Items 38a and 38b are, are not cutting
10 surfaces. They're, you know, they're rounded off, and there's no hard
11 facing applied there too. This device of Haley 374 is a cleaning device. It's
12 not really designed to be a hole opening device, and it's method of operation
13 is an up and down reciprocating motion. You pump up pressure. You
14 expand your blades.

15 JUDGE MOHANTY: All that's required in your claims is cutting
16 though. Isn't there cutting going on in display?

17 MR. HUDDLESTON: The -- it's reaming while drilling. It's, it's
18 required in, in, in Claim 201, Your Honor. There are cutter elements
19 required, but reaming while drilling up it requires you to be able to ream
20 while you're engaging forward with the hole. Otherwise, you're not
21 reaming while drilling. If you're, if you're cutting while the drill string is
22 moving in an upward direction, you're not reaming while drilling. You may
23 be reaming, possibly, but not while drilling.

24 JUDGE WALKER: Well, assuming, assuming we accept, accept
25 that, I'm looking at Figure 2, and it looks like if I extend a line from the,
26 from the top part labeled, 12, to the bottom part labeled, 12, that I have the

1 blade sticking out; the cutters. Or, what are sticking out are going to impact
2 the side of the holes. So, if I got a drill-bit on the bottom, I'm pushing
3 down, the drill-bit makes the initial cut, this is going to push out because of
4 the inward curvature of 38a and 38b.

5 Just looking at the diagram with, with the scissor blades in their
6 current position, it looks to me like those cutting elements, the 301, is going
7 to make contact before 38a. If I just extend a line what I see sticking out
8 passed the line from the top, 12, to the bottom, 12, looks like pretty much all
9 blade. So, I'm, I'm having trouble understanding why because part of what
10 I'm hearing, and correct me if I miss, mishear you. Part of what I'm hearing
11 you say is one of the reasons this won't work is that 38a and 38b don't have
12 cutting edges on them.

13 MR. HUDDLESTON: That's correct, Your Honor, they do not have
14 cutting edges. They --

15 JUDGE WALKER: Yeah, but if I've got a drill-bit below that that's
16 cutting in a downward direction and these are just really broadening the hole
17 behind it, why can't they be spun around and make the cuts on the side
18 which is what I'm understanding this mechanism to do. Is that not what it's
19 doing? Or, what, what your claimed invention is doing because the, the
20 drill-bit is making the downward incision, and then I'm broadening it as I go
21 down.

22 MR. HUDDLESTON: It, it's -- Your Honor, it's hard to, it's hard to
23 really comment on that because I'm making a theoretical proposition, and I
24 don't really have, I don't have drawings of -- there are no lines to designate
25 where the bore-hole is.

26 JUDGE WALKER: I understand.

1 MR. HUDDLESTON: And, you know, where what piece connects,
2 you know, which, which portion of the bore-hole first and at what time. I do
3 stand for the proposition that one of ordinary skill in the art would, would
4 not look at this and see this is a reamer; certainly not capable of being a
5 reamer while drilling. 38a, you know, there's a surface there, but it's not a
6 cutting surface, and 38b, you know, the mirror image of the same thing on
7 the other side. So, that being said, it, it's, it's our position that this device
8 would be inoperable if used as the Examiner suggests in rejecting Claims
9 201 through 218.

10 JUDGE WALKER: Okay, thank you.

11 JUDGE HORNER: All right.

12 JUDGE WALKER: All right.

13 JUDGE HORNER: Thank you.

14 (Whereupon, the proceedings concluded.)